



# Sequence Listing

<100> Nikolics, Karoly  
McFarland, Keith C.  
Segaloff, Deborah L.  
Seeburg, Peter H.

<120> Glycoprotein Hormone Receptor Molecules

<130> P0576P1C3

<140> US 10/755,190

<141> 2004-01-09

<150> US 09/877,804

<151> 2001-06-07

<150> US 08/207,814

<151> 1994-03-07

<150> US 07/781,153

<151> 1991-10-31

<150> PCT/US90/02488

<151> 1990-05-04

<150> US 07/347,683

<151> 1989-05-05

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Gly Arg Arg Val Pro Ala Leu Arg Gln Leu Leu Val Leu  
5 10

gca gtg ctg ctg ctg aag cct tca cag ctg cag tcc cga 124  
Ala Val Leu Leu Leu Lys Pro Ser Gln Leu Gln Ser Arg  
15 20 25

gag ctg tca ggg tcg cgc tgc ccc gag ccc tgc gac tgc 163  
Glu Leu Ser Gly Ser Arg Cys Pro Glu Pro Cys Asp Cys  
30 35 40

gca ccg gat ggc gcc ctg cgc tgt cct ggc cct cga gcc 202  
Ala Pro Asp Gly Ala Leu Arg Cys Pro Gly Pro Arg Ala  
45 50

ggc ctc gcc aga cta tct ctc acc tat ctc cct gtc aaa 241  
Gly Leu Ala Arg Leu Ser Leu Thr Tyr Leu Pro Val Lys  
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gta att cca tca caa gct ttc agg gga ctt aat gag gtc 280  
 Val Ile Pro Ser Gln Ala Phe Arg Gly Leu Asn Glu Val  
 70 75

gta aaa att gaa atc tct cag agt gat tcc ctg gaa agg 319  
 Val Lys Ile Glu Ile Ser Gln Ser Asp Ser Leu Glu Arg  
 80 85 90

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 Ile Glu Ala Asn Ala Phe Asp Asn Leu Leu Asn Leu Ser  
 95 100 105

gaa cta ctg atc cag aac acc aaa aac ctg cta tac att 397  
 Glu Leu Leu Ile Gln Asn Thr Lys Asn Leu Leu Tyr Ile  
 110 115

gaa cct ggt gct ttt aca aac ctc cct cgg tta aaa tac 436  
 Glu Pro Gly Ala Phe Thr Asn Leu Pro Arg Leu Lys Tyr  
 120 125 130

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 Leu Ser Ile Cys Asn Thr Gly Ile Arg Thr Leu Pro Asp  
 135 140

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 Val Thr Lys Ile Ser Ser Ser Glu Phe Asn Phe Ile Leu  
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 Glu Ile Cys Asp Asn Leu His Ile Thr Thr Ile Pro Gly  
 160 165 170

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 Gln Gly Ala Thr Gly Pro Ser Ile Leu Asp Ile Ser Ser  
 225 230 235

acc aaa ttg cag gcc ctg ccg agc cac ggg ctg gag tcc 787  
 Thr Lys Leu Gln Ala Leu Pro Ser His Gly Leu Glu Ser  
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att cag acg ctc atc gcc ctg tct tcc tac tca ctg aaa 826  
 Ile Gln Thr Leu Ile Ala Leu Ser Ser Tyr Ser Leu Lys  
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aca ctg ccc tcc aaa gaa aaa ttc acg agc ctc ctg gtc 865

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Thr | Leu | Pro | Ser | Lys | Glu | Lys | Phe | Thr | Ser | Leu | Leu | Val |      |  |
|     |     |     | 265 |     |     |     |     | 270 |     |     |     |     |      |  |
| gcc | acg | ctg | acc | tac | ccc | agc | cac | tgc | tgc | gcc | ttc | agg | 904  |  |
| Ala | Thr | Leu | Thr | Tyr | Pro | Ser | His | Cys | Cys | Ala | Phe | Arg |      |  |
| 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |      |  |
| aat | ttg | ccg | aag | aaa | gaa | cag | aat | ttt | tca | ttt | tcc | att | 943  |  |
| Asn | Leu | Pro | Lys | Lys | Glu | Gln | Asn | Phe | Ser | Phe | Ser | Ile |      |  |
|     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |      |  |
| ttt | gaa | aac | ttc | tcc | aaa | caa | tgc | gaa | agc | aca | gtt | aga | 982  |  |
| Phe | Glu | Asn | Phe | Ser | Lys | Gln | Cys | Glu | Ser | Thr | Val | Arg |      |  |
|     |     |     | 305 |     |     |     |     | 310 |     |     |     |     |      |  |
| aaa | gca | gat | aac | gag | acg | ctt | tat | tcc | gcc | atc | ttt | gag | 1021 |  |
| Lys | Ala | Asp | Asn | Glu | Thr | Leu | Tyr | Ser | Ala | Ile | Phe | Glu |      |  |
|     | 315 |     |     |     |     | 320 |     |     |     |     | 325 |     |      |  |
| gag | aat | gaa | ctc | agt | ggc | tgg | gat | tat | gat | tat | ggc | ttc | 1060 |  |
| Glu | Asn | Glu | Leu | Ser | Gly | Trp | Asp | Tyr | Asp | Tyr | Gly | Phe |      |  |
|     |     |     | 330 |     |     |     |     | 335 |     |     |     |     |      |  |
| tgt | tca | ccc | aag | aca | ctc | caa | tgt | gct | cca | gaa | cca | gat | 1099 |  |
| Cys | Ser | Pro | Lys | Thr | Leu | Gln | Cys | Ala | Pro | Glu | Pro | Asp |      |  |
| 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |      |  |
| gct | ttc | aac | ccc | tgt | gaa | gat | att | atg | ggc | tat | gcc | ttc | 1138 |  |
| Ala | Phe | Asn | Pro | Cys | Glu | Asp | Ile | Met | Gly | Tyr | Ala | Phe |      |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |      |  |
| ctt | agg | gtc | ctg | att | tgg | ctg | att | aat | ata | cta | gcc | atc | 1177 |  |
| Leu | Arg | Val | Leu | Ile | Trp | Leu | Ile | Asn | Ile | Leu | Ala | Ile |      |  |
|     |     |     | 370 |     |     |     |     | 375 |     |     |     |     |      |  |
| ttt | ggc | aac | ctg | aca | gtc | ctc | ttt | gtt | ctc | ctg | acc | agt | 1216 |  |
| Phe | Gly | Asn | Leu | Thr | Val | Leu | Phe | Val | Leu | Leu | Thr | Ser |      |  |
|     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |     |      |  |
| cgt | tat | aaa | ctg | aca | gtg | ccc | cgc | ttc | ctc | atg | tgt | aat | 1255 |  |
| Arg | Tyr | Lys | Leu | Thr | Val | Pro | Arg | Phe | Leu | Met | Cys | Asn |      |  |
|     |     |     | 395 |     |     |     |     | 400 |     |     |     |     |      |  |
| ctc | tcc | ttt | gca | gac | ttt | tgc | atg | ggg | ctc | tac | ctg | ctg | 1294 |  |
| Leu | Ser | Phe | Ala | Asp | Phe | Cys | Met | Gly | Leu | Tyr | Leu | Leu |      |  |
| 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |     |      |  |
| ctc | att | gcc | tcc | gtg | gac | tcc | caa | aca | aaa | ggc | cag | tac | 1333 |  |
| Leu | Ile | Ala | Ser | Val | Asp | Ser | Gln | Thr | Lys | Gly | Gln | Tyr |      |  |
|     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |      |  |
| tat | aac | cac | gcc | ata | gac | tgg | cag | aca | ggg | agt | ggc | tgc | 1372 |  |
| Tyr | Asn | His | Ala | Ile | Asp | Trp | Gln | Thr | Gly | Ser | Gly | Cys |      |  |
|     |     |     |     | 435 |     |     |     |     | 440 |     |     |     |      |  |
| ggt | gca | gct | ggc | ttc | ttt | act | gtg | ttt | gcc | agt | gaa | ctc | 1411 |  |
| Gly | Ala | Ala | Gly | Phe | Phe | Thr | Val | Phe | Ala | Ser | Glu | Leu |      |  |
|     | 445 |     |     |     |     | 450 |     |     |     |     | 455 |     |      |  |
| tct | gtc | tac | acc | ctg | acg | gtt | atc | acc | ctg | gaa | agg | tgg | 1450 |  |
| Ser | Val | Tyr | Thr | Leu | Thr | Val | Ile | Thr | Leu | Glu | Arg | Trp |      |  |

460

465

cac acc atc acc tat gct gta cag cta gac caa aag cta 1489  
 His Thr Ile Thr Tyr Ala Val Gln Leu Asp Gln Lys Leu  
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aga ctg agg cat gcc atc cca att atg ctc gga gga tgg 1528  
 Arg Leu Arg His Ala Ile Pro Ile Met Leu Gly Gly Trp  
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 Leu Phe Ser Thr Leu Ile Ala Thr Met Pro Leu Val Gly  
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 Ile Ser Asn Tyr Met Lys Val Ser Ile Cys Leu Pro Met  
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Gly Ser Arg Cys Pro Glu Pro Cys Asp Cys Ala Pro Asp Gly Ala

| 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Arg | Cys | Pro | Gly | Pro | Arg | Ala | Gly | Leu | Ala | Arg | Leu | Ser | Leu |
|     |     |     |     | 50  |     |     |     |     |     |     |     |     |     | 60  |
| Thr | Tyr | Leu | Pro | Val | Lys | Val | Ile | Pro | Ser | Gln | Ala | Phe | Arg | Gly |
|     |     |     |     | 65  |     |     |     |     |     |     |     |     |     | 75  |
| Leu | Asn | Glu | Val | Val | Lys | Ile | Glu | Ile | Ser | Gln | Ser | Asp | Ser | Leu |
|     |     |     |     | 80  |     |     |     |     |     |     |     |     |     | 90  |
| Glu | Arg | Ile | Glu | Ala | Asn | Ala | Phe | Asp | Asn | Leu | Leu | Asn | Leu | Ser |
|     |     |     |     | 95  |     |     |     |     |     |     |     |     |     | 105 |
| Glu | Leu | Leu | Ile | Gln | Asn | Thr | Lys | Asn | Leu | Leu | Tyr | Ile | Glu | Pro |
|     |     |     |     | 110 |     |     |     |     |     |     |     |     |     | 120 |
| Gly | Ala | Phe | Thr | Asn | Leu | Pro | Arg | Leu | Lys | Tyr | Leu | Ser | Ile | Cys |
|     |     |     |     | 125 |     |     |     |     |     |     |     |     |     | 135 |
| Asn | Thr | Gly | Ile | Arg | Thr | Leu | Pro | Asp | Val | Thr | Lys | Ile | Ser | Ser |
|     |     |     |     | 140 |     |     |     |     |     |     |     |     |     | 150 |
| Ser | Glu | Phe | Asn | Phe | Ile | Leu | Glu | Ile | Cys | Asp | Asn | Leu | His | Ile |
|     |     |     |     | 155 |     |     |     |     |     |     |     |     |     | 165 |
| Thr | Thr | Ile | Pro | Gly | Asn | Ala | Phe | Gln | Gly | Met | Asn | Asn | Glu | Ser |
|     |     |     |     | 170 |     |     |     |     |     |     |     |     |     | 180 |
| Val | Thr | Leu | Lys | Leu | Tyr | Gly | Asn | Gly | Phe | Glu | Glu | Val | Gln | Ser |
|     |     |     |     | 185 |     |     |     |     |     |     |     |     |     | 195 |
| His | Ala | Phe | Asn | Gly | Thr | Thr | Leu | Ile | Ser | Leu | Glu | Leu | Lys | Glu |
|     |     |     |     | 200 |     |     |     |     |     |     |     |     |     | 210 |
| Asn | Ile | Tyr | Leu | Glu | Lys | Met | His | Ser | Gly | Ala | Phe | Gln | Gly | Ala |
|     |     |     |     | 215 |     |     |     |     |     |     |     |     |     | 225 |
| Thr | Gly | Pro | Ser | Ile | Leu | Asp | Ile | Ser | Ser | Thr | Lys | Leu | Gln | Ala |
|     |     |     |     | 230 |     |     |     |     |     |     |     |     |     | 240 |
| Leu | Pro | Ser | His | Gly | Leu | Glu | Ser | Ile | Gln | Thr | Leu | Ile | Ala | Leu |
|     |     |     |     | 245 |     |     |     |     |     |     |     |     |     | 255 |
| Ser | Ser | Tyr | Ser | Leu | Lys | Thr | Leu | Pro | Ser | Lys | Glu | Lys | Phe | Thr |
|     |     |     |     | 260 |     |     |     |     |     |     |     |     |     | 270 |
| Ser | Leu | Leu | Val | Ala | Thr | Leu | Thr | Tyr | Pro | Ser | His | Cys | Cys | Ala |
|     |     |     |     | 275 |     |     |     |     |     |     |     |     |     | 285 |
| Phe | Arg | Asn | Leu | Pro | Lys | Lys | Glu | Gln | Asn | Phe | Ser | Phe | Ser | Ile |
|     |     |     |     | 290 |     |     |     |     |     |     |     |     |     | 300 |
| Phe | Glu | Asn | Phe | Ser | Lys | Gln | Cys | Glu | Ser | Thr | Val | Arg | Lys | Ala |
|     |     |     |     | 305 |     |     |     |     |     |     |     |     |     | 315 |
| Asp | Asn | Glu | Thr | Leu | Tyr | Ser | Ala | Ile | Phe | Glu | Glu | Asn | Glu | Leu |
|     |     |     |     | 320 |     |     |     |     |     |     |     |     |     | 330 |
| Ser | Gly | Trp | Asp | Tyr | Asp | Tyr | Gly | Phe | Cys | Ser | Pro | Lys | Thr | Leu |
|     |     |     |     | 335 |     |     |     |     |     |     |     |     |     | 345 |

|                 |                     |                     |     |
|-----------------|---------------------|---------------------|-----|
| Gln Cys Ala Pro | Glu Pro Asp Ala Phe | Asn Pro Cys Glu Asp | Ile |
| 350             | 355                 |                     | 360 |
| Met Gly Tyr Ala | Phe Leu Arg Val Leu | Ile Trp Leu Ile Asn | Ile |
| 365             | 370                 |                     | 375 |
| Leu Ala Ile Phe | Gly Asn Leu Thr Val | Leu Phe Val Leu Leu | Thr |
| 380             | 385                 |                     | 390 |
| Ser Arg Tyr Lys | Leu Thr Val Pro Arg | Phe Leu Met Cys Asn | Leu |
| 395             | 400                 |                     | 405 |
| Ser Phe Ala Asp | Phe Cys Met Gly Leu | Tyr Leu Leu Leu Ile | Ala |
| 410             | 415                 |                     | 420 |
| Ser Val Asp Ser | Gln Thr Lys Gly Gln | Tyr Tyr Asn His Ala | Ile |
| 425             | 430                 |                     | 435 |
| Asp Trp Gln Thr | Gly Ser Gly Cys Gly | Ala Ala Gly Phe Phe | Thr |
| 440             | 445                 |                     | 450 |
| Val Phe Ala Ser | Glu Leu Ser Val Tyr | Thr Leu Thr Val Ile | Thr |
| 455             | 460                 |                     | 465 |
| Leu Glu Arg Trp | His Thr Ile Thr Tyr | Ala Val Gln Leu Asp | Gln |
| 470             | 475                 |                     | 480 |
| Lys Leu Arg Leu | Arg His Ala Ile Pro | Ile Met Leu Gly Gly | Trp |
| 485             | 490                 |                     | 495 |
| Leu Phe Ser Thr | Leu Ile Ala Thr Met | Pro Leu Val Gly Ile | Ser |
| 500             | 505                 |                     | 510 |
| Asn Tyr Met Lys | Val Ser Ile Cys Leu | Pro Met Asp Val Glu | Ser |
| 515             | 520                 |                     | 525 |
| Thr Leu Ser Gln | Val Tyr Ile Leu Ser | Ile Leu Ile Leu Asn | Val |
| 530             | 535                 |                     | 540 |
| Val Ala Phe Val | Val Ile Cys Ala Cys | Tyr Ile Arg Ile Tyr | Phe |
| 545             | 550                 |                     | 555 |
| Ala Val Gln Asn | Pro Glu Leu Thr Ala | Pro Asn Lys Asp Thr | Lys |
| 560             | 565                 |                     | 570 |
| Ile Ala Lys Lys | Met Ala Ile Leu Ile | Phe Thr Asp Phe Thr | Cys |
| 575             | 580                 |                     | 585 |
| Met Ala Pro Ile | Ser Phe Phe Ala Ile | Ser Ala Ala Phe Lys | Val |
| 590             | 595                 |                     | 600 |
| Pro Leu Ile Thr | Val Thr Asn Ser Lys | Ile Leu Leu Val Leu | Phe |
| 605             | 610                 |                     | 615 |
| Tyr Pro Val Asn | Ser Cys Ala Asn Pro | Phe Leu Tyr Ala Ile | Phe |
| 620             | 625                 |                     | 630 |
| Thr Lys Ala Phe | Gln Arg Asp Phe Leu | Leu Leu Leu Ser Arg | Phe |
| 635             | 640                 |                     | 645 |

|                           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Gly                       | Cys | Cys | Lys | Arg | Arg | Ala | Glu | Leu | Tyr | Arg | Arg | Lys | Glu | Phe | 650 | 655 | 660 |    |
| Ser                       | Ala | Tyr | Thr | Ser | Asn | Cys | Lys | Asn | Gly | Phe | Pro | Gly | Ala | Ser | 665 | 670 | 675 |    |
| Lys                       | Pro | Ser | Gln | Ala | Thr | Leu | Lys | Leu | Ser | Thr | Val | His | Cys | Gln | 680 | 685 | 690 |    |
| Gln                       | Pro | Ile | Pro | Pro | Arg | Ala | Leu | Thr | His |     |     |     |     |     | 695 | 700 |     |    |
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| Arg                       | Glu | Leu | Ser | Gly | Ser | Arg | Cys | Pro | Glu | Pro | Cys | Asp | Cys | Ala | 1   | 5   | 10  | 15 |
| Pro                       | Asp | Gly | Ala | Leu | Arg | Cys | Pro | Gly | Pro | Arg | Ala | Gly | Leu | Ala | 20  | 25  | 30  |    |
| Arg                       | Leu | Ser | Leu | Thr | Tyr | Leu | Pro | Val | Lys | Val | Ile | Pro | Ser | Gln | 35  | 40  | 45  |    |
| Ala                       | Phe | Arg | Gly | Leu | Asn | Glu | Val | Val | Lys | Ile | Glu | Ile | Ser | Gln | 50  | 55  | 60  |    |
| Ser                       | Asp | Ser | Leu | Glu | Arg | Ile | Glu | Ala | Asn | Ala | Phe | Asp | Asn | Leu | 65  | 70  | 75  |    |
| Leu                       | Asn | Leu | Ser | Glu | Leu | Leu | Ile | Gln | Asn | Thr | Lys | Asn | Leu | Leu | 80  | 85  | 90  |    |
| Tyr                       | Ile | Glu | Pro | Gly | Ala | Phe | Thr | Asn | Leu | Pro | Arg | Leu | Lys | Tyr | 95  | 100 | 105 |    |
| Leu                       | Ser | Ile | Cys | Asn | Thr | Gly | Ile | Arg | Thr | Leu | Pro | Asp | Val | Thr | 110 | 115 | 120 |    |
| Lys                       | Ile | Ser | Ser | Ser | Glu | Phe | Asn | Phe | Ile | Leu | Glu | Ile | Cys | Asp | 125 | 130 | 135 |    |
| Asn                       | Leu | His | Ile | Thr | Thr | Ile | Pro | Gly | Asn | Ala | Phe | Gln | Gly | Met | 140 | 145 | 150 |    |
| Asn                       | Asn | Glu | Ser | Val | Thr | Leu | Lys | Leu | Tyr | Gly | Asn | Gly | Phe | Glu | 155 | 160 | 165 |    |
| Glu                       | Val | Gln | Ser | His | Ala | Phe | Asn | Gly | Thr | Thr | Leu | Ile | Ser | Leu | 170 | 175 | 180 |    |
| Glu                       | Leu | Lys | Glu | Asn | Ile | Tyr | Leu | Glu | Lys | Met | His | Ser | Gly | Ala | 185 | 190 | 195 |    |
| Phe                       | Gln | Gly | Ala | Thr | Gly | Pro | Ser | Ile | Leu | Asp | Ile | Ser | Ser | Thr |     |     |     |    |



| 200 |     |     |     |     | 205 |     |     |     |     | 210 |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Leu | Gln | Ala | Leu | Pro | Ser | His | Gly | Leu | Glu | Ser | Ile | Gln | Thr |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Leu | Ile | Ala | Leu | Ser | Ser | Tyr | Ser | Leu | Lys | Thr | Leu | Pro | Ser | Lys |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Glu | Lys | Phe | Thr | Ser | Leu | Leu | Val | Ala | Thr | Leu | Thr | Tyr | Pro | Ser |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| His | Cys | Cys | Ala | Phe | Arg | Asn | Leu | Pro | Lys | Lys | Glu | Gln | Asn | Phe |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Ser | Phe | Ser | Ile | Phe | Glu | Asn | Phe | Ser | Lys | Gln | Cys | Glu | Ser | Thr |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Val | Arg | Lys | Ala | Asp | Asn | Glu | Thr | Leu | Tyr | Ser | Ala | Ile | Phe | Glu |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Glu | Asn | Glu | Leu | Ser | Gly | Trp | Asp | Tyr | Asp | Tyr | Gly | Phe | Cys | Ser |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Pro | Lys | Thr | Leu | Gln | Cys | Ala | Pro | Glu | Pro | Asp | Ala | Phe | Asn | Pro |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Cys | Glu | Asp | Ile | Met | Gly | Tyr | Ala | Phe | Leu | Arg | Val | Leu | Ile | Trp |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Leu | Ile | Asn | Ile | Leu | Ala | Ile | Phe | Gly | Asn | Leu | Thr | Val | Leu | Phe |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Val | Leu | Leu | Thr | Ser | Arg | Tyr | Lys | Leu | Thr | Val | Pro | Arg | Phe | Leu |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |
| Met | Cys | Asn | Leu | Ser | Phe | Ala | Asp | Phe | Cys | Met | Gly | Leu | Tyr | Leu |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |
| Leu | Leu | Ile | Ala | Ser | Val | Asp | Ser | Gln | Thr | Lys | Gly | Gln | Tyr | Tyr |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |
| Asn | His | Ala | Ile | Asp | Trp | Gln | Thr | Gly | Ser | Gly | Cys | Gly | Ala | Ala |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |
| Gly | Phe | Phe | Thr | Val | Phe | Ala | Ser | Glu | Leu | Ser | Val | Tyr | Thr | Leu |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |
| Thr | Val | Ile | Thr | Leu | Glu | Arg | Trp | His | Thr | Ile | Thr | Tyr | Ala | Val |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |
| Gln | Leu | Asp | Gln | Lys | Leu | Arg | Leu | Arg | His | Ala | Ile | Pro | Ile | Met |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |
| Leu | Gly | Gly | Trp | Leu | Phe | Ser | Thr | Leu | Ile | Ala | Thr | Met | Pro | Leu |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Val | Gly | Ile | Ser | Asn | Tyr | Met | Lys | Val | Ser | Ile | Cys | Leu | Pro | Met |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |
| Asp | Val | Glu | Ser | Thr | Leu | Ser | Gln | Val | Tyr | Ile | Leu | Ser | Ile | Leu |
|     |     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |

|                 |                     |                         |     |     |     |
|-----------------|---------------------|-------------------------|-----|-----|-----|
| Ile Leu Asn Val | Val Ala Phe Val Val | Ile Cys Ala Cys Tyr Ile | 515 | 520 | 525 |
| Arg Ile Tyr Phe | Ala Val Gln Asn Pro | Glu Leu Thr Ala Pro Asn | 530 | 535 | 540 |
| Lys Asp Thr Lys | Ile Ala Lys Lys Met | Ala Ile Leu Ile Phe Thr | 545 | 550 | 555 |
| Asp Phe Thr Cys | Met Ala Pro Ile Ser | Phe Phe Ala Ile Ser Ala | 560 | 565 | 570 |
| Ala Phe Lys Val | Pro Leu Ile Thr Val | Thr Asn Ser Lys Ile Leu | 575 | 580 | 585 |
| Leu Val Leu Phe | Tyr Pro Val Asn Ser | Cys Ala Asn Pro Phe Leu | 590 | 595 | 600 |
| Tyr Ala Ile Phe | Thr Lys Ala Phe Gln | Arg Asp Phe Leu Leu Leu | 605 | 610 | 615 |
| Leu Ser Arg Phe | Gly Cys Cys Lys Arg | Arg Ala Glu Leu Tyr Arg | 620 | 625 | 630 |
| Arg Lys Glu Phe | Ser Ala Tyr Thr Ser | Asn Cys Lys Asn Gly Phe | 635 | 640 | 645 |
| Pro Gly Ala Ser | Lys Pro Ser Gln Ala | Thr Leu Lys Leu Ser Thr | 650 | 655 | 660 |
| Val His Cys Gln | Gln Pro Ile Pro Pro | Arg Ala Leu Thr His     | 665 | 670 |     |

<210> 4

<211> 341

<212> PRT

<213> Artificial Sequence

<220>

<223> deduced sequence

<400> 4

|   |    |    |    |    |
|---|----|----|----|----|
| Arg Glu Leu Ser Gly Ser Arg Cys Pro Glu Pro Cys Asp Cys Ala | 1  | 5  | 10 | 15 |
| Pro Asp Gly Ala Leu Arg Cys Pro Gly Pro Arg Ala Gly Leu Ala | 20 | 25 | 30 |    |
| Arg Leu Ser Leu Thr Tyr Leu Pro Val Lys Val Ile Pro Ser Gln | 35 | 40 | 45 |    |
| Ala Phe Arg Gly Leu Asn Glu Val Val Lys Ile Glu Ile Ser Gln | 50 | 55 | 60 |    |
| Ser Asp Ser Leu Glu Arg Ile Glu Ala Asn Ala Phe Asp Asn Leu | 65 | 70 | 75 |    |
| Leu Asn Leu Ser Glu Leu Leu Ile Gln Asn Thr Lys Asn Leu Leu | 80 | 85 | 90 |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Ile | Glu | Pro | Gly | Ala | Phe | Thr | Asn | Leu | Pro | Arg | Leu | Lys | Tyr | 95  | 100 | 105 |
| Leu | Ser | Ile | Cys | Asn | Thr | Gly | Ile | Arg | Thr | Leu | Pro | Asp | Val | Thr | 110 | 115 | 120 |
| Lys | Ile | Ser | Ser | Ser | Glu | Phe | Asn | Phe | Ile | Leu | Glu | Ile | Cys | Asp | 125 | 130 | 135 |
| Asn | Leu | His | Ile | Thr | Thr | Ile | Pro | Gly | Asn | Ala | Phe | Gln | Gly | Met | 140 | 145 | 150 |
| Asn | Asn | Glu | Ser | Val | Thr | Leu | Lys | Leu | Tyr | Gly | Asn | Gly | Phe | Glu | 155 | 160 | 165 |
| Glu | Val | Gln | Ser | His | Ala | Phe | Asn | Gly | Thr | Thr | Leu | Ile | Ser | Leu | 170 | 175 | 180 |
| Glu | Leu | Lys | Glu | Asn | Ile | Tyr | Leu | Glu | Lys | Met | His | Ser | Gly | Ala | 185 | 190 | 195 |
| Phe | Gln | Gly | Ala | Thr | Gly | Pro | Ser | Ile | Leu | Asp | Ile | Ser | Ser | Thr | 200 | 205 | 210 |
| Lys | Leu | Gln | Ala | Leu | Pro | Ser | His | Gly | Leu | Glu | Ser | Ile | Gln | Thr | 215 | 220 | 225 |
| Leu | Ile | Ala | Leu | Ser | Ser | Tyr | Ser | Leu | Lys | Thr | Leu | Pro | Ser | Lys | 230 | 235 | 240 |
| Glu | Lys | Phe | Thr | Ser | Leu | Leu | Val | Ala | Thr | Leu | Thr | Tyr | Pro | Ser | 245 | 250 | 255 |
| His | Cys | Cys | Ala | Phe | Arg | Asn | Leu | Pro | Lys | Lys | Glu | Gln | Asn | Phe | 260 | 265 | 270 |
| Ser | Phe | Ser | Ile | Phe | Glu | Asn | Phe | Ser | Lys | Gln | Cys | Glu | Ser | Thr | 275 | 280 | 285 |
| Val | Arg | Lys | Ala | Asp | Asn | Glu | Thr | Leu | Tyr | Ser | Ala | Ile | Phe | Glu | 290 | 295 | 300 |
| Glu | Asn | Glu | Leu | Ser | Gly | Trp | Asp | Tyr | Asp | Tyr | Gly | Phe | Cys | Ser | 305 | 310 | 315 |
| Pro | Lys | Thr | Leu | Gln | Cys | Ala | Pro | Glu | Pro | Asp | Ala | Phe | Asn | Pro | 320 | 325 | 330 |
| Cys | Glu | Asp | Ile | Met | Gly | Tyr | Ala | Phe | Leu | Arg |     |     |     |     | 335 | 340 |     |

<210> 5

<211> 2366

<212> DNA

<213> Rattus

<400> 5

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cggtgaatgg ataaataagg atg gcc ttg ctc ctg gtc tcc 91  
Met Ala Leu Leu Leu Val Ser

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|---|
|     |     |     |     |     |     |     |     |     |     |     |     |     | 1   |  |  |  |  |  |  |  |  |  |  |  |  |  | 5 |
| ttg | ctg | gca | ttc | ttg | ggc | acg | gga | tct | gga | tgt | cat | cac | 130 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Leu | Leu | Ala | Phe | Leu | Gly | Thr | Gly | Ser | Gly | Cys | His | His |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|     |     | 10  |     |     |     |     |     | 15  |     |     |     | 20  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| tgg | ctg | tgt | cat | tgc | tct | aat | agg | gtc | ttt | ctc | tgc | caa | 169 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Trp | Leu | Cys | His | Cys | Ser | Asn | Arg | Val | Phe | Leu | Cys | Gln |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|     |     |     |     | 25  |     |     |     | 30  |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| gac | agc | aag | gtg | aca | gag | att | ccg | acc | gac | ctc | ccc | cgg | 208 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Asp | Ser | Lys | Val | Thr | Glu | Ile | Pro | Thr | Asp | Leu | Pro | Arg |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| aac | gcc | att | gaa | ctg | agg | ttt | gtg | ctc | acc | aag | ctt | cga | 247 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Asn | Ala | Ile | Glu | Leu | Arg | Phe | Val | Leu | Thr | Lys | Leu | Arg |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|     |     | 50  |     |     |     |     |     | 55  |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| gtc | atc | ccg | aaa | gga | tca | ttt | gct | gga | ttt | gga | gac | ctg | 286 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Val | Ile | Pro | Lys | Gly | Ser | Phe | Ala | Gly | Phe | Gly | Asp | Leu |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|     |     | 60  |     | 65  |     |     |     |     |     | 70  |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| gag | aaa | ata | gag | atc | tct | cag | aat | gat | gtc | ttg | gaa | gta | 325 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Glu | Lys | Ile | Glu | Ile | Ser | Gln | Asn | Asp | Val | Leu | Glu | Val |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|     |     | 75  |     |     |     | 80  |     |     |     |     |     | 85  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| ata | gag | gca | gat | gtg | ttc | tcc | aac | cta | ccc | aag | ttg | cat | 364 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Ile | Glu | Ala | Asp | Val | Phe | Ser | Asn | Leu | Pro | Lys | Leu | His |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|     |     |     |     | 90  |     |     |     | 95  |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| gaa | att | agg | att | gaa | aag | gcc | aac | aat | ctt | ctg | tac | atc | 403 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Glu | Ile | Arg | Ile | Glu | Lys | Ala | Asn | Asn | Leu | Leu | Tyr | Ile |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| aac | ccg | gag | gcc | ttc | cag | aat | ctc | ccc | agt | ctc | aga | tat | 442 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Asn | Pro | Glu | Ala | Phe | Gln | Asn | Leu | Pro | Ser | Leu | Arg | Tyr |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|     |     | 115 |     |     |     |     |     | 120 |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| ctg | tta | ata | tcc | aac | aca | ggc | att | aag | cac | ttg | cca | gct | 481 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Leu | Leu | Ile | Ser | Asn | Thr | Gly | Ile | Lys | His | Leu | Pro | Ala |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| 125 |     |     |     | 130 |     |     |     |     |     | 135 |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| gtt | cac | aag | atc | cag | tct | ctc | caa | aag | gtt | cta | cta | gac | 520 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Val | His | Lys | Ile | Gln | Ser | Leu | Gln | Lys | Val | Leu | Leu | Asp |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|     |     | 140 |     |     |     | 145 |     |     |     |     |     | 150 |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| att | caa | gat | aac | ata | aac | atc | cac | atc | gtt | gcc | agg | aac | 559 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Ile | Gln | Asp | Asn | Ile | Asn | Ile | His | Ile | Val | Ala | Arg | Asn |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|     |     |     |     | 155 |     |     |     | 160 |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| tcc | ttc | atg | gga | ctg | agt | ttt | gaa | agt | gtg | att | tta | tgg | 598 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Ser | Phe | Met | Gly | Leu | Ser | Phe | Glu | Ser | Val | Ile | Leu | Trp |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| 165 |     |     |     |     |     | 170 |     |     |     | 175 |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| ctg | agt | aag | aat | ggg | att | gaa | gaa | ata | cac | aac | tgt | gca | 637 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Leu | Ser | Lys | Asn | Gly | Ile | Glu | Glu | Ile | His | Asn | Cys | Ala |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|     |     | 180 |     |     |     | 185 |     |     |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| ttc | aac | gga | act | cag | cta | gat | gaa | ctg | aat | cta | agc | gat | 676 |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| Phe | Asn | Gly | Thr | Gln | Leu | Asp | Glu | Leu | Asn | Leu | Ser | Asp |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| 190 |     |     |     | 195 |     |     |     | 200 |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |   |

|     |     |     |     |     |     |     |     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| aac | aat | aat | ttg | gaa | gaa | ttg | cct | aat | gac | gtt | ttc | cag | 715  |
| Asn | Asn | Asn | Leu | Glu | Glu | Leu | Pro | Asn | Asp | Val | Phe | Gln |      |
|     | 205 |     |     |     |     |     | 210 |     |     |     |     | 215 |      |
| gga | gcc | tct | ggg | cca | gtc | att | tta | gat | atc | tca | agg | aca | 754  |
| Gly | Ala | Ser | Gly | Pro | Val | Ile | Leu | Asp | Ile | Ser | Arg | Thr |      |
|     |     |     | 220 |     |     |     |     |     | 225 |     |     |     |      |
| aag | gtc | cat | tcc | tta | cca | aac | cat | ggc | tta | gaa | aat | ctg | 793  |
| Lys | Val | His | Ser | Leu | Pro | Asn | His | Gly | Leu | Glu | Asn | Leu |      |
|     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |     |      |
| aag | aag | ctg | agg | gcc | agg | tca | aca | tac | cgc | ttg | aaa | aag | 832  |
| Lys | Lys | Leu | Arg | Ala | Arg | Ser | Thr | Tyr | Arg | Leu | Lys | Lys |      |
|     |     | 245 |     |     |     |     |     | 250 |     |     |     |     |      |
| ctc | cct | aat | ctg | gac | aag | ttt | gtc | acc | ctc | atg | gag | gcc | 871  |
| Leu | Pro | Asn | Leu | Asp | Lys | Phe | Val | Thr | Leu | Met | Glu | Ala |      |
| 255 |     |     |     |     | 260 |     |     |     |     | 265 |     |     |      |
| agc | ctc | acc | tac | ccc | agc | cac | tgc | tgt | gct | ttt | gca | aac | 910  |
| Ser | Leu | Thr | Tyr | Pro | Ser | His | Cys | Cys | Ala | Phe | Ala | Asn |      |
|     | 270 |     |     |     |     | 275 |     |     |     |     |     | 280 |      |
| ttg | aag | cgg | caa | atc | tct | gaa | ctt | cat | cca | att | tgc | aac | 949  |
| Leu | Lys | Arg | Gln | Ile | Ser | Glu | Leu | His | Pro | Ile | Cys | Asn |      |
|     |     |     | 285 |     |     |     |     |     | 290 |     |     |     |      |
| aag | tct | att | tta | agg | caa | gat | att | gat | gat | atg | act | caa | 988  |
| Lys | Ser | Ile | Leu | Arg | Gln | Asp | Ile | Asp | Asp | Met | Thr | Gln |      |
|     | 295 |     |     |     |     | 300 |     |     |     |     | 305 |     |      |
| att | ggg | gat | cag | aga | gtc | tct | ctg | ata | gat | gat | gaa | ccc | 1027 |
| Ile | Gly | Asp | Gln | Arg | Val | Ser | Leu | Ile | Asp | Asp | Glu | Pro |      |
|     |     |     | 310 |     |     |     |     | 315 |     |     |     |     |      |
| agt | tat | gga | aaa | gga | tct | gac | atg | atg | tac | aat | gaa | ttt | 1066 |
| Ser | Tyr | Gly | Lys | Gly | Ser | Asp | Met | Met | Tyr | Asn | Glu | Phe |      |
| 320 |     |     |     |     | 325 |     |     |     |     | 330 |     |     |      |
| gat | tat | gac | tta | tgt | aat | gaa | gtt | gtt | gat | gtg | acc | tgc | 1105 |
| Asp | Tyr | Asp | Leu | Cys | Asn | Glu | Val | Val | Asp | Val | Thr | Cys |      |
|     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |      |
| tca | cca | aag | cca | gat | gca | ttt | aat | cca | tgt | gaa | gat | atc | 1144 |
| Ser | Pro | Lys | Pro | Asp | Ala | Phe | Asn | Pro | Cys | Glu | Asp | Ile |      |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |      |
| atg | ggg | tac | aac | atc | ctc | agg | gtc | ttg | ata | tgg | ttt | att | 1183 |
| Met | Gly | Tyr | Asn | Ile | Leu | Arg | Val | Leu | Ile | Trp | Phe | Ile |      |
|     | 360 |     |     |     |     | 365 |     |     |     |     | 370 |     |      |
| agc | atc | ctg | gcc | att | act | ggg | aac | acc | aca | gtg | ctg | gtg | 1222 |
| Ser | Ile | Leu | Ala | Ile | Thr | Gly | Asn | Thr | Thr | Val | Leu | Val |      |
|     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |      |
| gtc | ctg | acc | aca | agc | caa | tac | aaa | cta | act | gtg | ccc | cgg | 1261 |
| Val | Leu | Thr | Thr | Ser | Gln | Tyr | Lys | Leu | Thr | Val | Pro | Arg |      |
| 385 |     |     |     |     | 390 |     |     |     |     |     | 395 |     |      |

ttt ctt atg tgt aac ctc gcc ttc gct gat ctc tgc ata 1300  
 Phe Leu Met Cys Asn Leu Ala Phe Ala Asp Leu Cys Ile  
 400 405 410

ggc atc tac ttg cta ctt ata gca tca gtt gac atc cat 1339  
 Gly Ile Tyr Leu Leu Ile Ala Ser Val Asp Ile His  
 415 420

acc aag agc cag tac cac aac tat gcc att gac tgg caa 1378  
 Thr Lys Ser Gln Tyr His Asn Tyr Ala Ile Asp Trp Gln  
 425 430 435

aca gga gca ggc tgt gat gct gct ggc ttt ttc act gtc 1417  
 Thr Gly Ala Gly Cys Asp Ala Ala Gly Phe Phe Thr Val  
 440 445

ttt gcc agt gaa ctg tca gtc tac aca ttg aca gcc atc 1456  
 Phe Ala Ser Glu Leu Ser Val Tyr Thr Leu Thr Ala Ile  
 450 455 460

acc cta gaa aga tgg cat acc atc aca cat gct atg caa 1495  
 Thr Leu Glu Arg Trp His Thr Ile Thr His Ala Met Gln  
 465 470 475

ctg gaa tgc aag gtg cag ctc cgg cat gct gcc agc gtc 1534  
 Leu Glu Cys Lys Val Gln Leu Arg His Ala Ala Ser Val  
 480 485

atg gta ttg ggc tgg act ttt gcc ttc gca gct gct ctc 1573  
 Met Val Leu Gly Trp Thr Phe Ala Phe Ala Ala Ala Leu  
 490 495 500

ttc ccc atc ttt ggc atc agt agc tac atg aaa gtg agc 1612  
 Phe Pro Ile Phe Gly Ile Ser Ser Tyr Met Lys Val Ser  
 505 510

atc tgc ctg ccc atg gat atc gac agc cct ttg tca cag 1651  
 Ile Cys Leu Pro Met Asp Ile Asp Ser Pro Leu Ser Gln  
 515 520 525

ctg tat gtt atg gcc ctc ctt gtc ctc aat gtc ctg gcc 1690  
 Leu Tyr Val Met Ala Leu Leu Val Leu Asn Val Leu Ala  
 530 535 540

ttt gtg gtc atc tgt ggc tgc tat acc cac atc tac ctc 1729  
 Phe Val Val Ile Cys Gly Cys Tyr Thr His Ile Tyr Leu  
 545 550

aca gtg agg aat cct acc att gtg tcc tca tca agc gac 1768  
 Thr Val Arg Asn Pro Thr Ile Val Ser Ser Ser Asp  
 555 560 565

acc aag att gcc aag cgc atg gcc aca ctc atc ttc aca 1807  
 Thr Lys Ile Ala Lys Arg Met Ala Thr Leu Ile Phe Thr  
 570 575

gac ttt ctc tgc atg gcc ccc att tca ttc ttt gcc att 1846  
 Asp Phe Leu Cys Met Ala Pro Ile Ser Phe Phe Ala Ile  
 580 585 590

tct gcc tcc ctc aag gtg ccg ctc atc act gtg tcc aag 1885

Ser Ala Ser Leu Lys Val Pro Leu Ile Thr Val Ser Lys  
 595 600 605

gcc aag att ctc cta gtt ctg ttc tac ccc atc aat tct 1924  
 Ala Lys Ile Leu Leu Val Leu Phe Tyr Pro Ile Asn Ser  
 610 615

tgt gcc aat cct ttc ctc tac gcc att ttc acc aag aac 1963  
 Cys Ala Asn Pro Phe Leu Tyr Ala Ile Phe Thr Lys Asn  
 620 625 630

ttc cgc agg gac ttc ttc atc ctg ctg agc aag ttt ggc 2002  
 Phe Arg Arg Asp Phe Phe Ile Leu Leu Ser Lys Phe Gly  
 635 640

tgt tat gaa atg caa gcc cag att tac agg aca gaa acc 2041  
 Cys Tyr Glu Met Gln Ala Gln Ile Tyr Arg Thr Glu Thr  
 645 650 655

tca tcc gct acc cac aac ttc cat gcc cga aag agc cac 2080  
 Ser Ser Ala Thr His Asn Phe His Ala Arg Lys Ser His  
 660 665 670

tgc tcc tca gct ccc aga gtc acc aat agt tac gtg ctt 2119  
 Cys Ser Ser Ala Pro Arg Val Thr Asn Ser Tyr Val Leu  
 675 680

gtc cct ctt aat cat tca tcc cag aac taaa aatcaatgtg 2160  
 Val Pro Leu Asn His Ser Ser Gln Asn  
 685 690 692

aaaatggatc ctcaccttga aagacaatta tgactccttc tgaagagcag 2210

gccatggact aaatggcaat cctactgcac atctcatcta atttaatctc 2260

tctgggtctc tgcattggcag actgatcagg gaccattaat cacccttttg 2310

gctcctctca cacttaaata atggtaacag caaataaaac aaagcaaaac 2360

cgcaca 2366

<210> 6

<211> 692

<212> PRT

<213> Artificial Sequence

<220>

<223> deduced sequence

<400> 6

Met Ala Leu Leu Leu Val Ser Leu Leu Ala Phe Leu Gly Thr Gly  
 1 5 10 15

Ser Gly Cys His His Trp Leu Cys His Cys Ser Asn Arg Val Phe  
 20 25 30

Leu Cys Gln Asp Ser Lys Val Thr Glu Ile Pro Thr Asp Leu Pro  
 35 40 45

Arg Asn Ala Ile Glu Leu Arg Phe Val Leu Thr Lys Leu Arg Val  
 50 55 60

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ile | Pro | Lys | Gly | Ser | Phe | Ala | Gly | Phe | Gly | Asp | Leu | Glu | Lys | Ile |  |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |
| Glu | Ile | Ser | Gln | Asn | Asp | Val | Leu | Glu | Val | Ile | Glu | Ala | Asp | Val |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Phe | Ser | Asn | Leu | Pro | Lys | Leu | His | Glu | Ile | Arg | Ile | Glu | Lys | Ala |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Asn | Asn | Leu | Leu | Tyr | Ile | Asn | Pro | Glu | Ala | Phe | Gln | Asn | Leu | Pro |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Ser | Leu | Arg | Tyr | Leu | Leu | Ile | Ser | Asn | Thr | Gly | Ile | Lys | His | Leu |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Pro | Ala | Val | His | Lys | Ile | Gln | Ser | Leu | Gln | Lys | Val | Leu | Leu | Asp |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Ile | Gln | Asp | Asn | Ile | Asn | Ile | His | Ile | Val | Ala | Arg | Asn | Ser | Phe |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| Met | Gly | Leu | Ser | Phe | Glu | Ser | Val | Ile | Leu | Trp | Leu | Ser | Lys | Asn |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Gly | Ile | Glu | Glu | Ile | His | Asn | Cys | Ala | Phe | Asn | Gly | Thr | Gln | Leu |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Asp | Glu | Leu | Asn | Leu | Ser | Asp | Asn | Asn | Asn | Leu | Glu | Glu | Leu | Pro |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Asn | Asp | Val | Phe | Gln | Gly | Ala | Ser | Gly | Pro | Val | Ile | Leu | Asp | Ile |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
| Ser | Arg | Thr | Lys | Val | His | Ser | Leu | Pro | Asn | His | Gly | Leu | Glu | Asn |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Leu | Lys | Lys | Leu | Arg | Ala | Arg | Ser | Thr | Tyr | Arg | Leu | Lys | Lys | Leu |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |
| Pro | Asn | Leu | Asp | Lys | Phe | Val | Thr | Leu | Met | Glu | Ala | Ser | Leu | Thr |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |
| Tyr | Pro | Ser | His | Cys | Cys | Ala | Phe | Ala | Asn | Leu | Lys | Arg | Gln | Ile |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |
| Ser | Glu | Leu | His | Pro | Ile | Cys | Asn | Lys | Ser | Ile | Leu | Arg | Gln | Asp |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |
| Ile | Asp | Asp | Met | Thr | Gln | Ile | Gly | Asp | Gln | Arg | Val | Ser | Leu | Ile |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |  |
| Asp | Asp | Glu | Pro | Ser | Tyr | Gly | Lys | Gly | Ser | Asp | Met | Met | Tyr | Asn |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |  |
| Glu | Phe | Asp | Tyr | Asp | Leu | Cys | Asn | Glu | Val | Val | Asp | Val | Thr | Cys |  |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |  |
| Ser | Pro | Lys | Pro | Asp | Ala | Phe | Asn | Pro | Cys | Glu | Asp | Ile | Met | Gly |  |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |  |



|   |     |     |     |
|---|-----|-----|-----|
| Tyr Asn Ile Leu Arg Val Leu Ile Trp Phe Ile Ser Ile Leu Ala | 365 | 370 | 375 |
| Ile Thr Gly Asn Thr Thr Val Leu Val Val Leu Thr Thr Ser Gln | 380 | 385 | 390 |
| Tyr Lys Leu Thr Val Pro Arg Phe Leu Met Cys Asn Leu Ala Phe | 395 | 400 | 405 |
| Ala Asp Leu Cys Ile Gly Ile Tyr Leu Leu Leu Ile Ala Ser Val | 410 | 415 | 420 |
| Asp Ile His Thr Lys Ser Gln Tyr His Asn Tyr Ala Ile Asp Trp | 425 | 430 | 435 |
| Gln Thr Gly Ala Gly Cys Asp Ala Ala Gly Phe Phe Thr Val Phe | 440 | 445 | 450 |
| Ala Ser Glu Leu Ser Val Tyr Thr Leu Thr Ala Ile Thr Leu Glu | 455 | 460 | 465 |
| Arg Trp His Thr Ile Thr His Ala Met Gln Leu Glu Cys Lys Val | 470 | 475 | 480 |
| Gln Leu Arg His Ala Ala Ser Val Met Val Leu Gly Trp Thr Phe | 485 | 490 | 495 |
| Ala Phe Ala Ala Ala Leu Phe Pro Ile Phe Gly Ile Ser Ser Tyr | 500 | 505 | 510 |
| Met Lys Val Ser Ile Cys Leu Pro Met Asp Ile Asp Ser Pro Leu | 515 | 520 | 525 |
| Ser Gln Leu Tyr Val Met Ala Leu Leu Val Leu Asn Val Leu Ala | 530 | 535 | 540 |
| Phe Val Val Ile Cys Gly Cys Tyr Thr His Ile Tyr Leu Thr Val | 545 | 550 | 555 |
| Arg Asn Pro Thr Ile Val Ser Ser Ser Ser Asp Thr Lys Ile Ala | 560 | 565 | 570 |
| Lys Arg Met Ala Thr Leu Ile Phe Thr Asp Phe Leu Cys Met Ala | 575 | 580 | 585 |
| Pro Ile Ser Phe Phe Ala Ile Ser Ala Ser Leu Lys Val Pro Leu | 590 | 595 | 600 |
| Ile Thr Val Ser Lys Ala Lys Ile Leu Leu Val Leu Phe Tyr Pro | 605 | 610 | 615 |
| Ile Asn Ser Cys Ala Asn Pro Phe Leu Tyr Ala Ile Phe Thr Lys | 620 | 625 | 630 |
| Asn Phe Arg Arg Asp Phe Phe Ile Leu Leu Ser Lys Phe Gly Cys | 635 | 640 | 645 |
| Tyr Glu Met Gln Ala Gln Ile Tyr Arg Thr Glu Thr Ser Ser Ala | 650 | 655 | 660 |
| Thr His Asn Phe His Ala Arg Lys Ser His Cys Ser Ser Ala Pro |     |     |     |

|   |                         |  |     |     |     |
|---|-------------------------|--|-----|-----|-----|
|   | 665                     |  | 670 |     | 675 |
| Arg Val Thr Asn Ser Tyr Val Leu Val                         | Pro Leu Asn His Ser Ser |  |     |     |     |
| 680   | 685                     |  |     | 690 |     |
| Gln Asn   |                         |  |     |     |     |
| <210> 7   |                         |  |     |     |     |
| <211> 675   |                         |  |     |     |     |
| <212> PRT   |                         |  |     |     |     |
| <213> Artificial Sequence                                   |                         |  |     |     |     |
| <220>   |                         |  |     |     |     |
| <223> deduced sequence                                      |                         |  |     |     |     |
| <400> 7   |                         |  |     |     |     |
| Cys His His Trp Leu Cys His Cys Ser Asn Arg Val Phe Leu Cys |                         |  |     |     |     |
| 1   | 5                       |  | 10  |     | 15  |
| Gln Asp Ser Lys Val Thr Glu Ile Pro Thr Asp Leu Pro Arg Asn |                         |  |     |     |     |
|   | 20                      |  | 25  |     | 30  |
| Ala Ile Glu Leu Arg Phe Val Leu Thr Lys Leu Arg Val Ile Pro |                         |  |     |     |     |
|   | 35                      |  | 40  |     | 45  |
| Lys Gly Ser Phe Ala Gly Phe Gly Asp Leu Glu Lys Ile Glu Ile |                         |  |     |     |     |
|   | 50                      |  | 55  |     | 60  |
| Ser Gln Asn Asp Val Leu Glu Val Ile Glu Ala Asp Val Phe Ser |                         |  |     |     |     |
|   | 65                      |  | 70  |     | 75  |
| Asn Leu Pro Lys Leu His Glu Ile Arg Ile Glu Lys Ala Asn Asn |                         |  |     |     |     |
|   | 80                      |  | 85  |     | 90  |
| Leu Leu Tyr Ile Asn Pro Glu Ala Phe Gln Asn Leu Pro Ser Leu |                         |  |     |     |     |
|   | 95                      |  | 100 |     | 105 |
| Arg Tyr Leu Leu Ile Ser Asn Thr Gly Ile Lys His Leu Pro Ala |                         |  |     |     |     |
|   | 110                     |  | 115 |     | 120 |
| Val His Lys Ile Gln Ser Leu Gln Lys Val Leu Leu Asp Ile Gln |                         |  |     |     |     |
|   | 125                     |  | 130 |     | 135 |
| Asp Asn Ile Asn Ile His Ile Val Ala Arg Asn Ser Phe Met Gly |                         |  |     |     |     |
|   | 140                     |  | 145 |     | 150 |
| Leu Ser Phe Glu Ser Val Ile Leu Trp Leu Ser Lys Asn Gly Ile |                         |  |     |     |     |
|   | 155                     |  | 160 |     | 165 |
| Glu Glu Ile His Asn Cys Ala Phe Asn Gly Thr Gln Leu Asp Glu |                         |  |     |     |     |
|   | 170                     |  | 175 |     | 180 |
| Leu Asn Leu Ser Asp Asn Asn Asn Leu Glu Glu Leu Pro Asn Asp |                         |  |     |     |     |
|   | 185                     |  | 190 |     | 195 |
| Val Phe Gln Gly Ala Ser Gly Pro Val Ile Leu Asp Ile Ser Arg |                         |  |     |     |     |
|   | 200                     |  | 205 |     | 210 |
| Thr Lys Val His Ser Leu Pro Asn His Gly Leu Glu Asn Leu Lys |                         |  |     |     |     |
|   | 215                     |  | 220 |     | 225 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Lys | Leu | Arg | Ala | Arg | Ser | Thr | Tyr | Arg | Leu | Lys | Lys | Leu | Pro | Asn |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Leu | Asp | Lys | Phe | Val | Thr | Leu | Met | Glu | Ala | Ser | Leu | Thr | Tyr | Pro |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |
| Ser | His | Cys | Cys | Ala | Phe | Ala | Asn | Leu | Lys | Arg | Gln | Ile | Ser | Glu |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |
| Leu | His | Pro | Ile | Cys | Asn | Lys | Ser | Ile | Leu | Arg | Gln | Asp | Ile | Asp |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |
| Asp | Met | Thr | Gln | Ile | Gly | Asp | Gln | Arg | Val | Ser | Leu | Ile | Asp | Asp |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |
| Glu | Pro | Ser | Tyr | Gly | Lys | Gly | Ser | Asp | Met | Met | Tyr | Asn | Glu | Phe |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |  |
| Asp | Tyr | Asp | Leu | Cys | Asn | Glu | Val | Val | Asp | Val | Thr | Cys | Ser | Pro |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |  |
| Lys | Pro | Asp | Ala | Phe | Asn | Pro | Cys | Glu | Asp | Ile | Met | Gly | Tyr | Asn |  |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |  |
| Ile | Leu | Arg | Val | Leu | Ile | Trp | Phe | Ile | Ser | Ile | Leu | Ala | Ile | Thr |  |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |  |
| Gly | Asn | Thr | Thr | Val | Leu | Val | Val | Leu | Thr | Thr | Ser | Gln | Tyr | Lys |  |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |  |
| Leu | Thr | Val | Pro | Arg | Phe | Leu | Met | Cys | Asn | Leu | Ala | Phe | Ala | Asp |  |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |  |
| Leu | Cys | Ile | Gly | Ile | Tyr | Leu | Leu | Leu | Ile | Ala | Ser | Val | Asp | Ile |  |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |  |
| His | Thr | Lys | Ser | Gln | Tyr | His | Asn | Tyr | Ala | Ile | Asp | Trp | Gln | Thr |  |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |  |
| Gly | Ala | Gly | Cys | Asp | Ala | Ala | Gly | Phe | Phe | Thr | Val | Phe | Ala | Ser |  |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |  |
| Glu | Leu | Ser | Val | Tyr | Thr | Leu | Thr | Ala | Ile | Thr | Leu | Glu | Arg | Trp |  |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |  |
| His | Thr | Ile | Thr | His | Ala | Met | Gln | Leu | Glu | Cys | Lys | Val | Gln | Leu |  |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |  |
| Arg | His | Ala | Ala | Ser | Val | Met | Val | Leu | Gly | Trp | Thr | Phe | Ala | Phe |  |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |
| Ala | Ala | Ala | Leu | Phe | Pro | Ile | Phe | Gly | Ile | Ser | Ser | Tyr | Met | Lys |  |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |  |
| Val | Ser | Ile | Cys | Leu | Pro | Met | Asp | Ile | Asp | Ser | Pro | Leu | Ser | Gln |  |
|     |     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |  |
| Leu | Tyr | Val | Met | Ala | Leu | Leu | Val | Leu | Asn | Val | Leu | Ala | Phe | Val |  |
|     |     |     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ile | Cys | Gly | Cys | Tyr | Thr | His | Ile | Tyr | Leu | Thr | Val | Arg | Asn |
|     |     |     |     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |
| Pro | Thr | Ile | Val | Ser | Ser | Ser | Ser | Asp | Thr | Lys | Ile | Ala | Lys | Arg |
|     |     |     |     | 545 |     |     |     |     | 550 |     |     |     |     | 555 |
| Met | Ala | Thr | Leu | Ile | Phe | Thr | Asp | Phe | Leu | Cys | Met | Ala | Pro | Ile |
|     |     |     |     | 560 |     |     |     |     | 565 |     |     |     |     | 570 |
| Ser | Phe | Phe | Ala | Ile | Ser | Ala | Ser | Leu | Lys | Val | Pro | Leu | Ile | Thr |
|     |     |     |     | 575 |     |     |     |     | 580 |     |     |     |     | 585 |
| Val | Ser | Lys | Ala | Lys | Ile | Leu | Leu | Val | Leu | Phe | Tyr | Pro | Ile | Asn |
|     |     |     |     | 590 |     |     |     |     | 595 |     |     |     |     | 600 |
| Ser | Cys | Ala | Asn | Pro | Phe | Leu | Tyr | Ala | Ile | Phe | Thr | Lys | Asn | Phe |
|     |     |     |     | 605 |     |     |     |     | 610 |     |     |     |     | 615 |
| Arg | Arg | Asp | Phe | Phe | Ile | Leu | Leu | Ser | Lys | Phe | Gly | Cys | Tyr | Glu |
|     |     |     |     | 620 |     |     |     |     | 625 |     |     |     |     | 630 |
| Met | Gln | Ala | Gln | Ile | Tyr | Arg | Thr | Glu | Thr | Ser | Ser | Ala | Thr | His |
|     |     |     |     | 635 |     |     |     |     | 640 |     |     |     |     | 645 |
| Asn | Phe | His | Ala | Arg | Lys | Ser | His | Cys | Ser | Ser | Ala | Pro | Arg | Val |
|     |     |     |     | 650 |     |     |     |     | 655 |     |     |     |     | 660 |
| Thr | Asn | Ser | Tyr | Val | Leu | Val | Pro | Leu | Asn | His | Ser | Ser | Gln | Asn |
|     |     |     |     | 665 |     |     |     |     | 670 |     |     |     |     | 675 |

<210> 8

<211> 348

<212> PRT

<213> Artificial Sequence

<220>

<223> deduced sequence

<400> 8

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | His | His | Trp | Leu | Cys | His | Cys | Ser | Asn | Arg | Val | Phe | Leu | Cys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Gln | Asp | Ser | Lys | Val | Thr | Glu | Ile | Pro | Thr | Asp | Leu | Pro | Arg | Asn |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Ala | Ile | Glu | Leu | Arg | Phe | Val | Leu | Thr | Lys | Leu | Arg | Val | Ile | Pro |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Lys | Gly | Ser | Phe | Ala | Gly | Phe | Gly | Asp | Leu | Glu | Lys | Ile | Glu | Ile |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Ser | Gln | Asn | Asp | Val | Leu | Glu | Val | Ile | Glu | Ala | Asp | Val | Phe | Ser |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Asn | Leu | Pro | Lys | Leu | His | Glu | Ile | Arg | Ile | Glu | Lys | Ala | Asn | Asn |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Leu | Leu | Tyr | Ile | Asn | Pro | Glu | Ala | Phe | Gln | Asn | Leu | Pro | Ser | Leu |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Arg | Tyr | Leu | Leu | Ile | Ser | Asn | Thr | Gly | Ile | Lys | His | Leu | Pro | Ala |

| 110                                 | 115                     | 120 |
|-------------------------------------|-------------------------|-----|
| Val His Lys Ile Gln Ser Leu Gln Lys | Val Leu Leu Asp Ile Gln |     |
| 125                                 | 130                     | 135 |
| Asp Asn Ile Asn Ile His Ile Val Ala | Arg Asn Ser Phe Met Gly |     |
| 140                                 | 145                     | 150 |
| Leu Ser Phe Glu Ser Val Ile Leu Trp | Leu Ser Lys Asn Gly Ile |     |
| 155                                 | 160                     | 165 |
| Glu Glu Ile His Asn Cys Ala Phe Asn | Gly Thr Gln Leu Asp Glu |     |
| 170                                 | 175                     | 180 |
| Leu Asn Leu Ser Asp Asn Asn Asn Leu | Glu Glu Leu Pro Asn Asp |     |
| 185                                 | 190                     | 195 |
| Val Phe Gln Gly Ala Ser Gly Pro Val | Ile Leu Asp Ile Ser Arg |     |
| 200                                 | 205                     | 210 |
| Thr Lys Val His Ser Leu Pro Asn His | Gly Leu Glu Asn Leu Lys |     |
| 215                                 | 220                     | 225 |
| Lys Leu Arg Ala Arg Ser Thr Tyr Arg | Leu Lys Lys Leu Pro Asn |     |
| 230                                 | 235                     | 240 |
| Leu Asp Lys Phe Val Thr Leu Met Glu | Ala Ser Leu Thr Tyr Pro |     |
| 245                                 | 250                     | 255 |
| Ser His Cys Cys Ala Phe Ala Asn Leu | Lys Arg Gln Ile Ser Glu |     |
| 260                                 | 265                     | 270 |
| Leu His Pro Ile Cys Asn Lys Ser Ile | Leu Arg Gln Asp Ile Asp |     |
| 275                                 | 280                     | 285 |
| Asp Met Thr Gln Ile Gly Asp Gln Arg | Val Ser Leu Ile Asp Asp |     |
| 290                                 | 295                     | 300 |
| Glu Pro Ser Tyr Gly Lys Gly Ser Asp | Met Met Tyr Asn Glu Phe |     |
| 305                                 | 310                     | 315 |
| Asp Tyr Asp Leu Cys Asn Glu Val Val | Asp Val Thr Cys Ser Pro |     |
| 320                                 | 325                     | 330 |
| Lys Pro Asp Ala Phe Asn Pro Cys Glu | Asp Ile Met Gly Tyr Asn |     |
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